

## Comets & shooting stars

### SCRIPT:

Shooting stars are flashy. But if you could see inside a shooting star, you would find a tiny meteor, maybe the size of a pea, that burns up in the atmosphere.

Come face to face with a comet, and you'll find a mountain. If you could put one next to the earth, it would be about the size of an asteroid – maybe 10 miles across.

Now that's plenty big. But the spooky thing is that a comet can grow into something that's bigger than the Earth – 20 times bigger than the Earth. That's because a comet's full of ice, and when that ice gets close to the Sun, it explodes.

The ice vaporizes in the heat of the sun, turning the comet into a sprinkler full of gas and dust. A cloud starts to grow...and grow...and grow...until the cloud can be 20 times bigger than the Earth. And that's what we see in the sky – a huge cloud of dust and gas...like a giant ghost with a long tail. And the tail is a ghost of another kind.

That's because the wind that blows the comet's tail comes from the Sun. The solar wind always blows the tail away from the Sun, no matter which way the comet's going. So, the tail can blow to the back, to the side, or even in front of the comet, leading the way. Strange indeed, and much different than a shooting star. But a comet has its own charm...a great, ghostly visitor from the outer reaches of space.

### Relevant NSES Standards

NSES Content Standard A: Understandings about scientific inquiry.

(Grades K-8) Science is used to describe/explain objects and events.

NSES Content Standard B: Physical science.

(Grades K-4) Objects are composed of materials (comets contain ice).

(Grades 5-8) Changes of properties in matter (solar heat vaporizes frozen material).

NSES Content Standard D: Earth and space science.

(Grades K-4) Objects in the sky.

(Grades 5-8) Objects in motion in the solar system.

(Grades 9-12) Evolution of the solar system.

NSES Content Standard E: Understanding about science and technology.

(Grades K-8) Using science to explain the natural world.

(Grades 9-12) Scientific inquiry is driven by the desire to understand the natural world.

NSES Content Standard F: Science in social perspectives.

(Grades K-8) Science influences how we see the world. (Comets as they appear in the night sky are not solid objects, but a cloud of gas and dust.)

**Credits:** Dr. Andrew Fruchter, Hubble Space Telescope; Dr. Martha Hanner, NASA JPL

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